TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NO. 42216

I. INTRODUCTION

This Class II minor source permit is for the operation of dryers and roasters by the Pistachio Corp. of Arizona in Bowie, Cochise County, Arizona.

A. Company Information

1.	Company Name	Pistachio Corp. of Arizona
2.	Mailing Address	3865 N. Business Center Drive, Suite 115 Tucson, AZ 85705
3.	Facility Address	Apache Pass Road Bowie, Cochise County, AZ, 85605

C. Attainment Classification

Cochise County, where Pistachio Corp. of Arizona is located, is shown as unclassified or attainment for the criteria pollutants listed in 40 CFR §81.303.

II. FACILITY DESCRIPTION

A. Process Description

Pistachio Corp. of Arizona is a pistachio nut growing and processing facility which uses the dryers primarily for reducing the moisture content of the pistachios. Additionally the silos used to store the pistachios are also equipped with dryers to additionally reduce moisture content of the pistachios to 5 percent. The facility also operates one roaster. The dryers and roaster are only authorized to burn natural gas.

B. Air Pollution Controls

The Pistachio Corp. of Arizona is required to limit the number of hours of operation of its dryers to 4,500 hours per year. This requirement is necessary in order for the facility to pass the Air Dispersion Modeling Analysis. The results of the Air Dispersion Modeling Analysis can be found in Section VII of this document.

III. EMISSIONS

The emission calculations for the permit review process relied upon emission factors derived from the Environmental Protection Agency's (EPA) Compilation of Air Pollution Emission Factors (5th Edition) .

Table1. Summary of Uncontrolled Emissions

Pollutant	Emissions tons/year
NO_x	26.22
CO	22.03
SO_2	.16
VOC	1.44
PM_{10}	2.0

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IV. APPLICABLE REGULATIONS

The applicable regulations were identified by the Department as part of the application packet. If necessary, the source is required to list any additional regulations that may be applicable.

Table 2: Verification of Applicable Regulations

Unit	Date of Manufacture	Control Device	Rule	Verification
Roaster and Dryers	NA	None	A.A.C. R-18-2-730	Rules associated with unclassified sources. The Dryers were included in this requirement rather than A.A.C. R-18-2-724 because the products of combustion come into contact with the process materials (the pistachio nuts).
Periodic activities	NA	Various	A.A.C. R-18-2-726 R-18-2-727 R-18-2-1101.A.8	Abrasive blasting, spray painting and asbestos related demolition or renovation operations are subject to these rules
Mobile sources	NA	Reasonable precautions	Article 8	Roadway and site cleaning machinery are subject to this Article
Fugitive Dust	NA	Various	Article 6	Fugitive air contaminant sources are subject to this rule

V. LEARNING SITES POLICY

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department conducted an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools at the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

The Department identified 1 learning site within two miles of the facility: Bowie Elementary School

ADEQ reviewed the numerical modeling of the emissions from the facility to determine how they might impact these learning sites under even the worst case conditions. ADEQ then compared the results of the modeling analysis to air quality standards and relevant guidelines established to be protective of human health. The results of the modeling demonstrate that the air emissions from the facility are below these standards and guidelines. As a result, ADEQ has determined that the operation of the facility will not adversely affect the learning sites.

VI. MONITORING AND RECORDKEEPING REQUIREMENTS

A. Dryers

1. Opacity Monitoring Requirements

The Permittee is required to conduct monthly surveys of visual emissions from the dryers to be performed by a certified Method 9 observer. If the opacity of the emissions observed appears to exceed the standard, the observer is required to conduct a certified EPA Reference Method 9 observation.

2. Recordkeeping Requirements

a. Particulate Matter

The Permittee is required to keep records of fuel supplier certifications to demonstrate compliance with the PM limit. The certification must contain information regarding the name of fuel supplier and the lower heating value of the fuel.

b. Opacity

The Permittee is required to record the emission point being observed, date, time and the results of all visible emission surveys or Method 9 observation made monthly, as well as the name of the observer who conducted the test. In the event of opacity going beyond the limit, the Permittee will keep a record of the corrective action taken to bring the opacity below the standard.

B. Roasters

1. Opacity Monitoring Requirements

The Permittee is required to conduct monthly surveys of visual emissions from the roaster stack to be performed by a certified EPA Reference Method 9 observer. If the opacity of the emissions observed appears to exceed the standard, the observer is required to conduct a certified EPA Reference Method 9 observation.

2. Recordkeeping Requirements

Opacity

The Permittee is required to record the emission point being observed, date, time and the results of all visible emission surveys or Method 9 observations made, as well as the name of the observer who conducted the test. In the event of opacity going beyond the limit, the Permittee will keep a record of the corrective action taken to bring the opacity below the standard.

C. Fugitive Dust

1. Opacity Monitoring Requirements

The permit requires monthly EPA Reference Method 9 observation of fugitive emissions by a certified Method 9 observer.

2. Recordkeeping Requirements

The Permittee is required to record the date, time, location and the results of all observations made, as well as the name of the observer who conducted the test. In the event of opacity going beyond the limit, the Permittee must take a six-minute Method 9 observation of the plume and keep a record of the corrective action taken to bring the opacity below the standard.

VII. AIR DISPERSION MODELING ANALYSIS

The SCREEN3 model was used to complete the air dispersion modeling analysis. The SCREEN3 model was run using screening meteorology, rural dispersion coefficients, and flat terrain.

SCREEN3 is a steady state, single source, Gaussian dispersion model developed to provide an easy to use method of obtaining pollutant concentration estimates. SCREEN3 is a USEPA approved screening model for estimating impacts at receptors located in simple terrain and complex terrain due to emissions from simple sources. The model is capable of calculating downwind ground level concentrations due to point, area, and volume sources. In addition, SCREEN3 incorporates algorithms for the simulation of aerodynamic downwash induced by buildings.

The Pistachio corp. of Arizona was modeled by separating the roaster, Silos, and Dryers. The roaster is the only emission source with an identifiable stack, and was modeled separately in SCREEN3 as a point source. The Dryers and Silos do not have specific stacks so could only be modeled as a volume source. Because of their location within the plant boundaries the silos and dryers had to be modeled as two separate volume sources.

VIII. NATIONAL AMBIENT AIR QUALITY STANDARDS MODELING ANALYSIS OVERVIEW

Table 3 below shows the combined modeling results of the NAAQS analysis for carbon monoxide and nitrogen dioxide. Both pollutants are within the standards set by the NAAQS.

Table 3. NAAQS Modeling Analysis Results

Pollutant	Emissions (lb/hr)	Averaging Time	Max. Conc. (ug/m^3)	NAAQS (ug/m^3)	Pass/Fail?
Carbon Monoxide	5.14	1-Hr	2232.15	10000	Pass
		8-Hr	1737.11	40000	Pass
PM_{10}	.445	24-hr	123.37	150	Pass
		Annual	20.35	50	Pass
SO_2	.349	3-Hr	131.86	1,300	Pass
		24-hr	60.82	365	Pass
		Annual	9.46	80	Pass

NO_2	6.12	Annual	99.12	100	Pass

IX. Arizona Ambient Air Quality Guidelines (AAAQGs) Modeling Results

Table 4 below shows the combined modeling results of the AAAQGs analysis for listed HAPs.

Table 4: AAAQG Modeling Results

Pollutant	Averaging Time - Annual	Max. Conc. (ug/m^3)	NAAQS (ug/m^3)	Pass/Fail?
Benz(a)anthracene	1-Hr	1.1E-7	7.9E-1	Pass
	24-Hr	1.42E-5	2.1E-1	Pass
	Annual	1.72E-6	5.7E-4	Pass
Benzene	1-Hr	1.29E-4	6.3E+2	Pass
	24-Hr	1.65E-2	5.1E+1	Pass
	Annual	2.0E-3	1.4E-1	Pass
Benzo(a)pyrene	1-Hr	7.35E-8	7.9E-1	Pass
	24-hr	9.44E-6	2.1E-1	Pass
	Annual	1.14E-6	5.7E-4	Pass
Dibenzo(a,h)anthracene	1-Hr	7.35E-8	7.9E-1	Pass
	24-Hr	9.44E-6	2.1E-1	Pass
	Annual	1.14E-6	5.7E-4	Pass
Formaldehyde	1-Hr	4.59E-3	2.0E+1	Pass
	24-Hr	5.9E-1	1.2E+1	Pass
	Annual	7.15E-2	8.0E-2	Pass
Hexane	1-Hr	1.10E-01	5.3E+3	Pass
	24-Hr	1.42E+01	1.4E+3	Pass
Naphthalene	1-Hr	3.74E-05	6.3E+2	Pass
	24-Hr	4.80E-03	4.0E+2	Pass
Toluene	1-Hr	2.08E-04	4.7E+3	Pass
	24-Hr	2.67E-02	3.0E+3	Pass

VIII. LIST OF ABBREVIATIONS

A.A.C……...Arizona Administrative Code
ADEQ……...……Arizona Department of Environmental Quality
CO …….Carbon Monoxide
EPA……..Environmental Protection Agency
MMBtu/hr……..…….……Million British thermal units per hour
NO_x……...Nitrogen Oxides
PM……..Particulate Matter
PM_{10}…..……...Particulate Matter Less than 10 Microns
PTE……..Potential to Emit
SO_2 …….Sulfur Dioxide
ug/m^3 …….....Microgram per Cubic Meter
VOC …….....Volatile Organic Compounds